Mādhava

$$\frac{\pi}{4} = 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9}$$

For first **4** terms

$\pi = 3.3396825\ldots$

Approximation error = **0.1980898...**

Ramanujan

$$\frac{1}{\pi} = \frac{2\sqrt{2}}{99^2} \sum_{k=0}^{\infty} \frac{(4k)!}{(k!)^4} \frac{26390k + 1103}{396^{4k}}$$

For first **4** terms

$\pi =$ 3.14159265358979323846264338327950288
4197663818133030623976165590998553105
5075091000703098378945679 68...

Approximation error = **4.94... x 10^{-40}**

Chudnovsky

$$\frac{1}{\pi} = 12 \sum_{k=0}^{\infty} \frac{(-1)^k (6k)!(545140134k + 13591409)}{(3k)!(k!)^3 (640320)^{3k+3/2}}$$

For first **4** terms

$\pi =$ 3.14159265358979323846264338327950288
4197169399375105820974944592307816346
69469024771726816523915601 1...

Approximation error = **-5.96... x 10^{-71}**

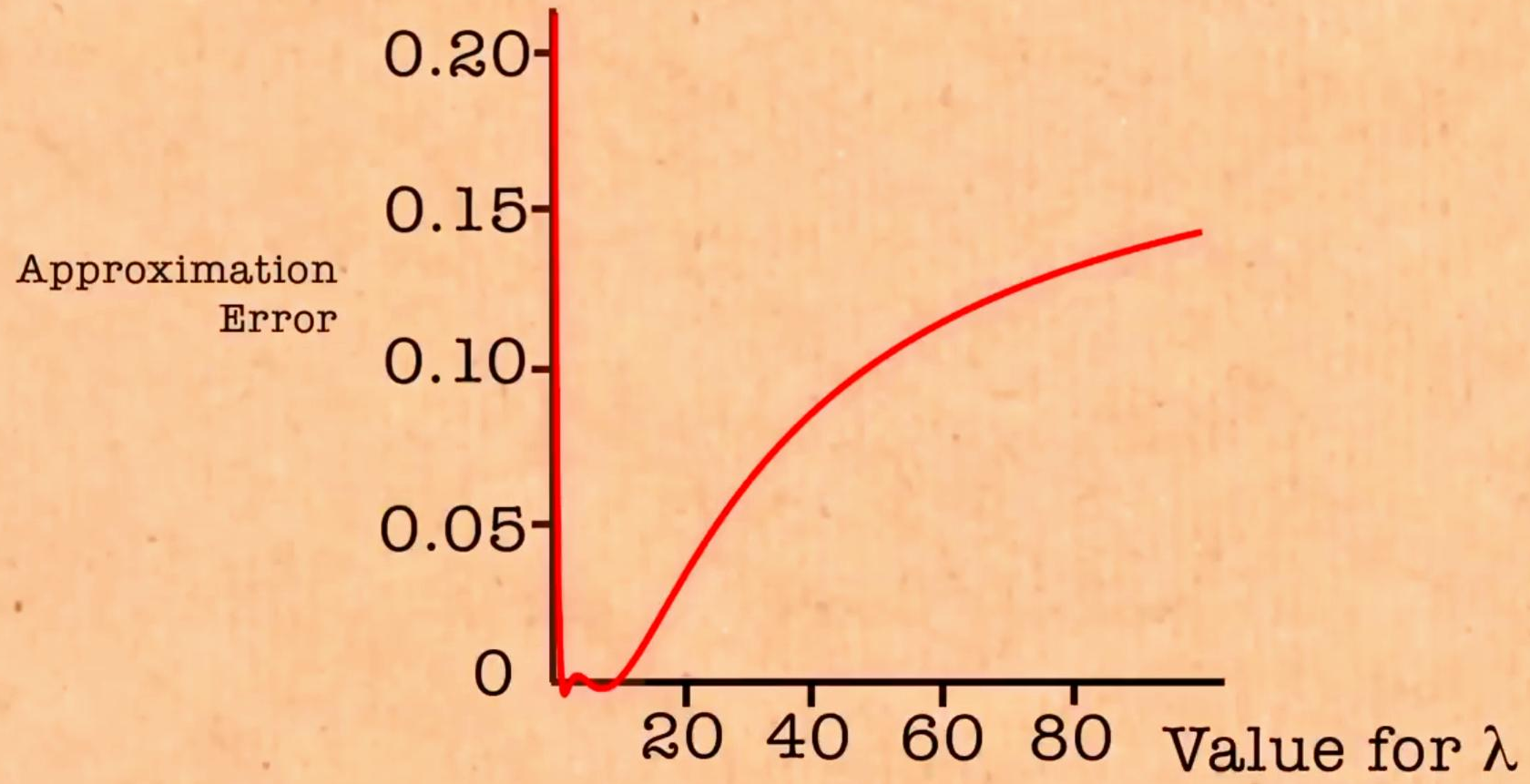
Saha & Sinha

$$\pi = 4+\sum_{n=1}^{\infty} \frac{1}{n!}\left(\frac{1}{n+\lambda}-\frac{4}{2n+1}\right)\left(\frac{(2n+1)^2}{4(n+\lambda)}-n\right)_{n-1}$$

For first **4** terms

And λ = **3**

π = 3.1430294785383919251752099176783336161373090430427651030177755153459721001023236203022403216766676 44...

Approximation error = **0.0014368**

$$\pi = 4 + \sum_{n=1}^{\infty} \frac{1}{n!}\left(\frac{1}{n+\lambda} - \frac{4}{2n+1}\right)\left(\frac{(2n+1)^2}{4(n+\lambda)} - n\right)_{n-1}$$ First 4 values of n